

## ADDs Specifications and Performance Parameters

| WGA Solar Concentrator                  | Mod 1  | Mod 2  |
|---|--|--|
| No. of Facets                           | 32   | 24   |
| Mirror Area (m <sup>2</sup> )           | 42.7   | 42.7   |
| Projected Mirror Area (m <sup>2</sup> ) | 41*  | 41*  |
| Reflectivity                            | 0.94   | 0.94   |
| Height (m)                              | 8.8  | 8.8  |
| Width (m)                               | 8.8  | 8.8  |
| Weight (kg)                             | 3320   | 2936   |
| Track Control                           | Open/Closed Loop                                       | Open/Closed Loop                                       |
| Focal Length (m)                        | 5.45   | 5.45   |
| Intercept Factor                        | 0.99+  | 0.99+  |
| Peak C R (suns)                         | > 11,000   | >13,000  |
| SOLO 161 Power Conversion Unit          | Mod 1  | Mod 2  |
| Aperture Diameter (cm)                  | 14   | 14   |
| Engine Type                             | kinematic Stirling<br>V2-cylinder, alpha configuration | kinematic Stirling<br>V2-cylinder, alpha configuration |
| Displacement (CC)                       | 160 cc   | 160 cc   |
| Speed (rpm)                             | 1800-1830  | 800 - 1890   |
| Working Fluid                           | hydrogen   | hydrogen   |
| Power Control                           | Variable Pressure                                      | Variable Pressure                                      |
| Generator                               | 3 $\phi$ /480V/Induction                               | 3 $\phi$ /480V/Synchronous                             |
| System Information                      | Mod 1  | Mod 2  |
| No. Systems Built/Erected               | 1  | 2/1  |
| On-Sun Op (hrs)                         | >4500  | >900   |
| Rated Output                            | 9.5 kW at 1000 W/m <sup>2</sup> DNI                    | 9kW at 1000 W/m <sup>2</sup> DNI                       |
| Peak Output (kW)                        | 11 kW  | 8**  |
| Peak Efficiency Net                     | 25.5%  | 23.5%  |

\* The original Mod 1 and Mod 2 areas were 46.3 and 44.5 m<sup>2</sup>, respectively. As a result of efficiency improvements the projected dish area has been reduced to 41 m<sup>2</sup>. Additional reductions are being considered. Concentrator diameter, height, and weight are for the original areas and will be reduced in the next design (Mod 3).

\*\* Mod 2 drives a conventional submersible water pump. The test pump that is currently being utilized is undersized for the output of the system (the system works significantly better than we expected). We are, therefore, using mirror covers to limit output to the pump. As a result, our peak net output for Mod 2 is less than rated.